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THE VETERINARY JOURNAL

A Monthly Review of Veterinary Science.

Editor:

FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.,
HONORARY VETERINARY SURGEON TO HIS MAJESTY THE KING,
OFFICIER DU MÉRITE AGRICOLE (FRANCE),
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HONORARY MEMBER OF THE AMERICAN VETERINARY ASSOCIATION,
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CAPTAIN ALFRED ADRIAN JONES, M.V.O., M.R.C.V.S.

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NOVEMBER, 1924.

Biography

CAPTAIN ALFRED ADRIAN JONES, M.V.O., M.R.C.V.S.

THE well-known sculptor, whose photograph, at work in his studio, we publish as our frontispiece in this month's issue, is a member of our profession who has attained the highest fame in another direction, a fame of which we are justly proud; for it is given to very few men to have had the honour of providing the greatest city of the world with no less than four of its public monuments and masterpieces of the sculptor's art.

Born in 1845 at Ludlow, in Shropshire, Captain Adrian Jones was the son of a veterinary surgeon, and it was in his father's practice that he developed that love of animals, and those powers of observation in regard to their external form and anatomy, which has made him one of the most accurate and artistic sculptors of animals of to-day. A visitor to his studio is at once struck by the realism of this, for it contains models of many of our most famous racehorses, including Prince Palatine, the £50,000 animal, whose tragic death occurred only a few days ago. The life-size bronze model of Persimmon which adorns the Royal Stud at Sandringham was modelled by our veterinary colleague, and it is not so generally known as it ought to be that the world-famed Quadriga opposite Hyde Park Corner, as well as the recently unveiled Cavalry Memorial at Stanhope Gate, and the equestrian statue of the Duke of Cambridge in front of the War Office, are his work too; this does not by any means complete the list. Exeter has evidence of his art in the statue of General Sir Redvers Buller, and other towns are similarly favoured.

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Graduating at the age of twenty from the London College, he joined the Army Veterinary Service shortly afterwards, and during a period of twenty-three years saw cavalry service with the 3rd Hussars, the Queen's Bays, and the 2nd Life Guards, as Regimental Veterinary Officer. His active service included the Abyssinian Campaign of 1868, the Boer War of 1881, and the Nile Expedition of 1884; and it was only to be enabled to pay closer attention to his art that he returned to civil life, settling down in that home of artists, Chelsea. Devoted to his work, and still a good friend to his first profession, his seventy-nine years sit very lightly upon his shoulders, for few men work more energetically or for longer hours than he does even now. That he may be spared for many years and enjoy good health to give us more of his great skill is, we feel sure, the unanimous wish of all his colleagues.

Editorial

IMMUNISATION AGAINST TUBERCULOSIS.

On a further page we call attention to an article by Dr. Nathan Raw on the "Vaccination of Calves against Tuberculosis." It is a continuation of an article which appeared in the Veterinary Journal for August 1921, and the distinguished author at that time prefaced the request that veterinarians would collaborate with him in testing the method which he described. Such work takes time and much patient care to prove or disprove, and although the report which is given to-day is that of a layman, the owner of the pedigree herd in question is a man of great influence in the agricultural world, and one who is not only a keen observer, but has the interest of this subject at heart, besides being an influential supporter of the veterinary profession.

We commend it to our readers for their careful consideration.

STATE *v.* PRIVATE VETERINARY COLLEGES IN AMERICA.

The day of the private college, with its underpaid staff and adver tising methods for paying its way, has vanished from America, and the well-equipped and properly arranged State College has taken its place. Less than twenty years ago the private colleges, especially those which gave a diploma after a three years' course, had many more students than those supported by the State, but the standard of education, both as regards matriculation and graduation, was incomparably inferior in the majority of instances to the State or University School. Some of the private colleges were of excellent

reputation, and a few of these were officially recognised by the American Veterinary Medical Association. It will be remembered by our English colleagues that our former Co-Editor, Professor Williams, of Cornell University, published in the VETERINARY JOURNAL some years ago a very interesting statement of facts which showed up the deficiencies and want of thoroughness in some of the private schools; and it was owing to the action taken by the officials of the American Veterinary Medical Association that attention was drawn to the need for a thorough revision of the system of veterinary educaation in America.

With the closing of the Indiana Veterinary College, the last recognised private school has ceased to exist, and at the present time the eleven recognised veterinary colleges which remain are all State institutions. It remains now for the Governments and Universities of the different States to see that veterinary science is sufficiently supported to enable its workers to occupy the position which will attract the best brains in the profession. It will then rest with them to prove that their existence is necessary for the welfare of agriculture and of the country in which they live.

General Articles

VACCINATION OF CALVES AGAINST TUBERCULOSIS.

BY NATHAN RAW, C.M.G., M.D.,
London.

THE problem of tuberculosis in cattle is one of vast importance, not only to the stock-breeder, but as bearing on the public health of the nation.

A vast amount of tuberculosis in young persons is directly caused by drinking milk from dairy cows affected with the disease, whilst the yearly loss to the owner of tuberculous cattle is enormous, amounting in some countries to millions a year. For these reasons it is imperative to do all in our power to eradicate the disease from dairy cows if we are to prevent a never-ending supply of tuberculosis from animals to man.

It is estimated that a million dairy cows in this country are at present affected with tuberculosis, and of this number about 5 per cent. are affected in the udder, thus rendering their milk dangerous to children.

It cannot be too strongly emphasised that calves are born healthy and quite free from tuberculosis, and that all of them are infected by contact in the stalls, or from drinking tuberculous milk. This

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infection takes place in the first six months. The tubercle bacillus which is the only cause of the disease exists in nature in three distinct types, all originally of a common species :—

(1) Human Type ;
(2) Bovine Type ;
(3) Avian Type.

The *Human Type* causes pulmonary tuberculosis in man, and is only conveyed with difficulty to animals.

The *Bovine Type* attacks cattle, pigs and horses ; very rarely sheep or goats, and never dogs.

The *Avian Type* causes the disease in poultry, birds and fishes.

The bovine bacillus is easily conveyable to man, and is the cause of an enormous amount of suffering and death amongst children. Over 10,000 deaths a year in this country alone are directly caused by milk from tuberculous cows.

The avian bacillus has not up to the present been considered as pathogenic to man or animals, but there is considerable evidence that infected poultry and birds may convey the disease to cows and pigs, and in Denmark in some districts it is forbidden to keep poultry on the same farms as dairy cows.

It is evident that the only way to get tubercle-free herds is by using every means to *prevent* infection. In the VETERINARY JOURNAL of August 1921 I fully described my vaccine for the purpose of immunising animals against tuberculosis. It is prepared from cultures of tubercle bacilli which have been attenuated for over sixteen years, and the present strains represent the 218th generation. They are quite non-virulent and non-toxic, and will not produce the disease in animals even in large doses of pure culture.

The vaccine has been used in this country for three years, and I have waited for that period of time before coming to any final conclusion as to its value in producing immunity in calves and other animals. I recognise the difficulty in obtaining accurate information of the results of vaccination, as so many of the calves are sold or lost sight of in the course of two years, and it is only in the large breeding herds, under the observation of a trained veterinary surgeon, where accurate records are kept that we can get the best information.

A large breeder of pedigree stock who has used this vaccine for three years writes to me as follows :—

"I am glad to say that your vaccine treatment on our calves has been a most unqualified success hitherto. I have used it on all calves born during the last two years, about 140 calves in all. These calves have been tested regularly since with Pasteur's tuberculin, and with hardly any exception they have all passed successfully.

"This is in marked contrast to what our former experience has been, when reactions were fairly numerous.

"I am therefore a strong believer in the efficacy of its treatment, and am very grateful to you for having introduced it."

For the purpose of immunising calves they should be separated from the mother at birth and fed on healthy milk or the pasteurised milk of the mother for a week, when the first dose of vaccine is given, followed in another week by the second dose of vaccine. The vaccine is given hypodermically in the usual way, with strict antiseptic precautions, under the skin of the abdomen.

The calf is thus rendered immune to ordinary infection.

The question is of such immense importance, both to stock-breeders and to the rising generation of children, that it is our duty to adopt every means possible to stamp out tuberculosis in cattle.*

SOME FURTHER NOTES ON BUFFALO.

By A. E. CAMERON,

Animal Pathologist, Veterinary Research Station, Lethbridge, Canada.

Following a visit to the Buffalo Park at Wainwright, Alberta, in February 1923, notes on Anatomy, Pathological Conditions and Parasites were published in the Veterinary Journal, vol. 79, p. 331.

A second visit was made to the Buffalo Park in December 1923, when about 1,000 buffalo were to be slaughtered to keep down the rapid increase of this herd. The Park, although large—the fence is about 75 miles long enclosing over 100,000 acres—is not sufficient to support a larger number than about 7,000 head in a dry year. At the end of 1923 the herd exceeded that number.

Over thirty head of buffalo were shot and dressed each day, so that the time available for examination was short, as observations had to be made without impeding the work of the butchers. The data obtained in the course of a few days from the 150 buffalo seen dressed is consequently more or less fragmentary.

The year 1923 was a favourable one, the grass being more plentiful and of better quality, so the buffalo were in better condition and the amount of parasitism was noticeably less.

The hides tanned are worth about one hundred dollars, and make excellent coats for winter use in Canada. The head has a black mane, which runs from just behind the horns down the face almost to the muzzle, getting shorter as it descends. The hair of the mane is frizzled. Immediately above the eye the hair is formed into curls,

* The Vaccine is prepared and carefully standardized in the laboratories of Messrs. Allen & Hanbury, Vere Street, London.

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which lie flat on the surface. There is a prominent beard below the lower jaw. The hair on the lower part of the neck is long, and there are also long tufts of black hair behind the forearms. Covering the withers and extending down over the shoulder blades is an area of somewhat fawn-coloured hair, slightly frizzled, which is longer than the hair on the posterior portion of the animal. This shoulder covering is usually matted, and is distinctly marked off from the coat covering the rest of the back and hindquarters, which is darker in

FIG. 1.—North American Buffalo (Bison).
Upper. Bull.
Lower. Castrated Buffalo, showing Steer Appearance.

FIG. 2.—Spleen.

colour, smoother, and shorter. The hair on the under part of the body is long and coarse. The whole body has a fine furry undergrowth dark in colour. The tail is comparatively short and tufted. The tail is held erect when the buffalo is annoyed and ready to charge.

It is of interest to note that the buffalo usually lies on the sternum, with the legs folded on each side of the body, so that when startled he rises with remarkable quickness and seems to do so evenly on all four legs.

The eye of the buffalo is smaller in proportion to the size of the head, and is more mobile than that of the ox. When passing a

buffalo one notices that the animal does not turn his head, in following one's movements, to the same extent as is the case with cattle. The eyeball is more loosely situated in the orbit, and the finger can

FIG. 3.—Liver, Posterior Surface, showing Double Gall Bladder.

be passed all around it. It is possible to bring the eyeball right outside the eyelids with the forefinger. There is slightly more pigment round the cornea, giving the eye a darker appearance. The

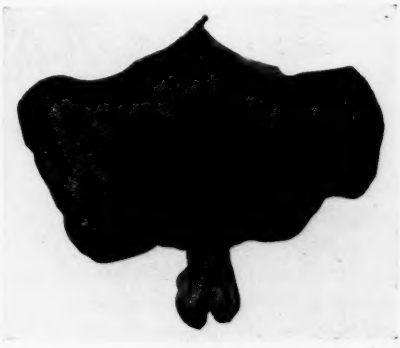

FIG. 4.—Liver, Anterior Surface, showing Double Gall Bladder.

corpora nigra are present on the upper margin of the pupil as a row of imperfectly formed small bodies, the largest in the centre. None were observed on the lower margin in the specimen dissected.

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A buffalo heifer probably five years old, after being driven into a corral, was "roped" for examination. This female was only about the size of a good yearling. She was subsequently shot and dressed, but the meat was condemned for emaciation. A very pronounced curvature of the spine was present (kyphosis), which accounted for the extraordinary appearance of the animal. She had not bred. As females are seldom killed, advantage was taken of this case to examine the genital organs. The general situation of the uterus and ovaries is the same as in the cow. These organs were later compared with those of an unbred heifer, when it was found that the convolutions of the uterus of the buffalo were not so pronounced as those of the heifer. This may partly be accounted for by the poor condition of this female buffalo. The cotyledons appeared the same in both cases. The period of gestation is believed to be forty-one weeks, but this time has not been properly controlled.

The testicles of the buffalo are smaller than those of the bull. The scrotum is less pendulous and has a thick covering of short hair. The penis is more loosely attached to the abdomen; the sigmoid flexure is present, and in other respects the penis is similar to that of the bull, with the exception that the groove formed by the processus urethræ appears to be less marked.

From an average buffalo the small intestine from stomach to cæcum measured 120 feet. The large intestine, including the cæcum and rectum, measured 40 feet in length.

The liver in general appearance is similar to that of the ox. Occasionally a subsidiary lobe is found on the caudate lobe. There is an imperfectly formed lobe on the visceral surface to the left of, or below, the duct of the gall bladder. In some livers this lobe is clearly marked off. Double gall bladders were seen in about the same percentage (7 per cent.). Possibly this peculiarity runs in families, as several usually come close together. When shooting the buffalo the hunter stays with a small herd until all suitable are killed. These small herds are probably families, as are found with range cattle and horses. Some of the men employed in the Park allege that they know some buffalo cows which keep at least their yearlings and two-year-olds with them.

An average spleen measured 24 inches long, 7 inches wide across the top, 6 inches across the middle, and 5 inches at the tip. At the thickest part it measured $\frac{3}{4}$ of an inch. This would indicate that the buffalo spleen is slightly larger than that of the ox, but not so thick.

The weights of the organs were found to correspond fairly closely with those recorded previously. The following weights were taken

in bulk after the organs had been allowed to dry in the cooling-room for forty-eight hours. In the case of the hearts the auricles are often removed in trimming them.

38 tongues weighed 115 lb., an average of 3 lb.
83 livers weighed 963 lb., an average of 11·6 lb.
69 hearts weighed 334 lb., an average of 4·84 lb.

A large buffalo bull had a liver weighing 16 lb. and measuring 26 inches long. The heart in this case, fresh, weighed 8 lb. 13 oz.

Pathological Conditions.—A spavin involving the two lower joints of the hock was observed in one case.

Thoroughpins were noticed in about ten cases, two of these were as large as hens' eggs.

A similar tumour-like lesion was found on two buffalo; in one case situated outside and above the metacarpus, in the other outside the stifle joint. These were about the size of turkeys' eggs. Both were enclosed by a think fibrous capsule. One had a little clear fluid with portions of degenerated tissue floating loose. In both there were irregular layers and patches of whitish caseation. No organisms were found and no neoplastic tissue was present. These lesions are probably degenerated hygromata.

In a number of cases small whitish lesions enclosing a drop of fluid, from a pinhead to a flax-seed in size, were found on the rumen adjacent to the spleen. They had the appearance of being parasitic, but microscopical examination revealed nothing to account for their cause.

Tuberculosis has been found in the buffalo, as is common in wild animals in captivity.

Parasites.—In all few parasites were found in comparison with those seen the previous winter. No tapeworms were found in spite of careful search. Two livers were found with flukes (*Fascioloides magna*). Parasites of the peritoneum (*Setaria*), although there were many, were less numerous this winter. Specimens of stomach worms sent to Mr. B. H. Ransom, of Washington, D.C., have been determined by him as a species of Cooperia.

Sarcocysts were seen in many hearts; these are small and not readily noticed. Hypoderma larvæ were distinctly less numerous, in many of the carcases examined not a single larva was seen.

Some fifty head were looked over for lice or other external parasites, but again none were found.

It is a pleasure to acknowledge the help and co-operation of Dr. R. Waddy, of the Meat Inspection Division, and the courtesy of Mr. A. G. Smith, Park Superintendent.

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CRYPTORCHIDISM IN ANIMALS.

By E. MORGAN, F.R.C.V.S., D.V.H.,
Puerto Cabello, Venezuela.

HAVING read with interest the excellent paper of Major Hobday on "Cryptorchidism in Animals and Man," which he presented at the Inaugural Meeting of the Comparative Section of the Royal Society of Medicine, I should like to mention two or three cases which might be of interest from more than one point of view :—

Firstly.—These cryptorchids were capable of producing progeny.

Secondly.—The progeny proved perfectly normal, i.e. without the defects of the sire.

Several years ago I bought a yearling crossbred "Kerry-Hill" ram from Mr. Mills, Llanerch Farm, near Llanidloes, Mont. The owner mentioned to me beforehand that the ram was a cryptorchid. When I saw the animal, and finding him, apart from this defect, a beautiful type of a sheep, I bought him, which I candidly admit was a risky thing to do, as it might lead to endless trouble in a large flock of sheep; but being younger than I am to-day, both regarding age and experience, besides being at the time a young shepherd, I hardly realised that it was a serious experiment. I took this ram home to Cardiganshire and placed it in a field with about fifteen selected ewe-lambs: this was in the month of October.

I noticed from time to time that the ram was serving these half-year old lambs, with the result that in due course, during the spring months of the year, the majority of those which he had left the raddle mark on, lambed, and much to my surprise there was not a single cryptorchid lamb amongst them.

The following season he was allowed more liberty, being turned out amongst the flock along with the other rams on the hill. While castrating the lambs the following month of June we only found one or two cryptorchids amongst several hundred lambs, which is considered quite a normal occurrence, as the majority of such cases prove normal before they attain one year old.

The following season, i.e. the third season, a neighbouring farmer would insist on buying this ram, and he kept it amongst his flock for two seasons; and as his flock consisted entirely of white-faced mountain sheep, and this ram being speckled, therefore there was no difficulty in recognising its offspring, which the farmer found quite normal in all respects.

The farmer eventually sold the ram to a local butcher, who discovered the two hidden testicles in the abdominal cavity; he said that one was much larger than the other, yet only about half the size of a normal testicle.

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THE SECOND CASE.—This was a two-year-old ram when I bought it from Mr. Davies, Deildre Farm, Llanidloes, and was a *mon*orchid. In this case again I was tempted to buy on account of the quality of the animal. I kept this ram amongst the flock for three seasons, and being such an attractive animal, the neighbours were always keen on buying his male offspring, none of which ever resembled the sire in having this organic defect. Eventually I sold this famous ram to Dr. Lloyd, of Bargoed, Glam., and it was utilised as a stud ram with his flock in Carmarthenshire, where it gave excellent results.

THIRD CASE.—This animal, which I have had under my care since August 1920, is a pedigree shorthorn bull, which was bred and sold to the present owner by one of the most famous present-day breeders in Scotland. This animal is a *mon*orchid inasmuch as that one testicle remains in the inguinal canal. We get the average number of calves from this *mon*orchid bull as we get from the others, which are perfectly sound bulls. So far I have not met a single one of its offspring with the defect of the sire. This bull, in spite of this abnormality, won the premier honours in the last agricultural show held in Venezuela. Good judges of stock often pass a remark that probably this bull would never have seen Venezuelan soil if it was not for this so-called defect.

In spite of these animals having proved themselves capable of producing sound species, yet being themselves a deviation from the normal, having none in one case, and in the other two cases only one single testicle in the scrotum, nevertheless we must classify them as unsound animals. The same I presume we would have to classify as unsound an *elephant* or a *whale* or birds and reptiles if they had testicles in a scrotum, because the testicles of these species never leave the abdominal cavity, yet they propagate their species, indeed some of the latter in an extravagant manner.

Now this leads me on to ask a question. *Why is it that cryptorchids like this bull are accepted in the "Shorthorn Herd Book"* when the majority of breeders only buy these animals at a very cheap price? They consider it a serious defect, and one that might lead to even worse trouble than accepting a horse with a curb into the *Stud Book*, yet the latter is rejected and the former accepted.

The above-mentioned cryptorchid cases proved themselves a complete success as progenitors of sound stock. On the other hand, I could mention a great number of both unilateral and bilateral cryptorchids who proved to be quite sterile or unproductive. One of these was amongst a herd of 200 cows last year. At first he was supposed to be a "bull-stag," i.e. an animal which had not been castrated until bull-characters were well mapped out all over the

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body. Many of the so-called " bull-stags " are able, in spite of being devoid of testicles, to serve cows, but without results as far as progeny is concerned. Seeing this animal serving cows almost daily, at last I ordered them to bring it to the yard, where it was cast, and after searching I found a testicle, about half the normal size, in the inguinal canal. The animal in due course was sold to a local butcher, who found another testicle in the abdominal cavity. In spite of the bull having served a great number of cows, yet none of them proved to be in-calf.

OUT OF THE BEATEN TRACK.

By R. G. HANCOCK, B.Sc., M.R.C.V.S.,
Beaconsfield, Bucks.

VETERINARY surgeons are not often called on to castrate and tail lambs. I have experimented with the various methods noted in text-books as being applicable to sheep. The two points to aim at are nil mortality and rapidity.

It has proved that the crudest method gives the best results. That is to say, I now take no measures to arrest hæmorrhage from the tail stump or the purse.

One year I had two pairs of large pincers made with sharp edges and a good deal of iron in the head to hold the heat. One can do about thirty tails at one heat. The ewe lambs were allowed to go; the ram lambs were put into a pen for subsequent castration. This means that perhaps more than half the lambs have to be caught twice. It is also extremely sanguinary from the operator's standpoint, for during castration the tail stump starts bleeding afresh and smothers the operator from head to foot.

I find the most rapid and satisfactory method to be as follows. Have half a dozen sharp scalpels in a dish covered with $2\frac{1}{2}$ per cent. carbolic solution. In another dish have a large-sized pair of pruning scissors. After every twenty or thirty lambs I change the carbolic solution. Have a sack stuffed with straw lashed over the top of one of the pen hurdles. One man catches and hands to the holder, shouting lamb or ewe as the case may be. The lamb is held in a sitting posture, belly towards the operator. The holder grasps the hind legs one in each hand and pulls them close to the head. In this way the scrotum and tail are conveniently presented. With a ram, castrate first, tail second.

The bottom third of the purse is cut off. Grasp the cord just above the testicle with the right hand. One at first finds the act of pulling out the testicle very cramping after several have been done.

It took me some time to discover that I almost invariably had grasped a little of the hair round the scrotum, which makes traction doubly hard. So push the scrotum up with the left hand before drawing out the testicle. Settle with the shepherd how much tail he wants, then cut off the superfluity with the secateurs. Throw the tails in one heap, the purse-ends in another. This gives one a tally of dockings and castrations at the end. In this way one can do over a hundred sheep in an hour.

* * *

I was asked to cut off the spurs of a cock-turkey who had foully murdered three of his wives with them. I did so. In a week he resumed marital operations, but not a fertile egg did the hens lay that season. Is this due to physiological connection between the spurs and testes, or to lack of sufficient stimulus to the hen during copulation? Does not the dog use his dewclaws during copulation to stimulate excitement in the bitch. Perhaps the callosities on the inner aspect of the forearm of the horse may have a similar function. It is curious how frequently Nature designs implements of chastisement in the male of the species for use at this occasion.

* * *

During the moulting season dogs are always coming in with moist eczema. This I always found troublesome to treat until a wise old kennelman told me to dab undiluted Jeyes' fluid over the moist patches. The dog never touches the places again. A kind of scab forms which brushes off in about ten days.

* * *

"Fecto," a solution of chlorine compounds made by Messrs. Parke Davis, has a remarkable effect on suppurating canker of the ear. Add a tablespoon to a pint of warm water, insert a flexible catheter down the ear, connected to a douche-can raised several feet from the animal. Dry off with boracic powder.

* * *

Perhaps the above may stimulate others to record their "tips" for some of the puzzling ailments that defeat the medicine chest. At the moment my wife's Pekinese is making slobbery noises, biting at his flank and scratching his chest alternately, much to the detriment of my prose style. It is a frequent phenomenon in a perfectly clean-skinned and otherwise delightful pet. Perhaps this will reach the eye of someone who knows the simple and evasive aid to connubial peace.

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THE FUTURE CONTROL OF FOOT-AND-MOUTH DISEASE.

By Lieut.-Colonel W. RAINEY, C.B.E., F.R.C.V.S.,
London, W.

It is far from the object of the following remarks to criticise anything that has been done in the past to stamp out foot-and-mouth disease in these islands. It would, indeed, be absurd to do so, because it is obvious that, if it is possible to keep our country free from the disease by slaughtering a reasonable proportion of its livestock, the policy adopted is to the fullest extent justified. A proportion of the livestock must in any case perish, whether by destruction or the ravages of the disease, and a clean bill of health is essential to the maintenance of our export cattle trade.

The only question that arises—and it is a very serious question—is whether it will, in fact, be possible in the future, by the present means, to maintain a clean bill of health in the matter of foot-and-mouth disease. Territorial protection from infection of a specific sort, secured to animal life over a long period of time, in many instances, renders the potential subjects of infection highly susceptible. A suitable example is the havoc wrought by influenza when, at rare intervals, it is introduced to remote Pacific islands.

In this connection it is interesting to observe that the susceptibility to some diseases does not apparently, in ordinary circumstances, increase by this form of protection: smallpox may be given as an example. The reason for this may be that one disease may give immunity from another. There is little doubt that the common winter "colds" of Northern Europe give some degree of immunity from pneumonia. On the South African Tableland, where common colds are rare, pneumonia and strangles, when they occur, are unexpectedly serious and often fatal.

May it not be that the well-observed resistance to pneumonia of seasoned working horses in cities, as compared with horses lately brought in from grass, is due in part to the colds which from time to time they suffer during the winter? Similarly, it is not impossible that some of the common diseases of childhood, e.g. chicken-pox, which may not have been so prevalent in olden days, confer a degree of resistance to smallpox.

Foot-and-mouth disease in its nature is unique: there is no common disease at all like it, consequently there is no opportunity of immunity being given in the ordinary course of events. If, therefore, the susceptibility to foot-and-mouth disease is increased by territorial protection—and the experiences of countries where the disease is endemic suggests that the susceptibility is so increased—then the ever-growing communications between these islands and the European Continent,

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on the one hand, and an ever-increasing susceptibility among our live-stock on the other hand, may ultimately combine to defeat entirely all our defensive efforts.

The English Channel may, and probably will, prove too slender a barrier, when the peoples of the Continental countries and our own people (some of them possibly carriers of infection) pass to and fro across it on the water, in the air, and, it may be, under the water, always increasing in numbers until, so far as communications are concerned, the populations are at least as intermingled as in olden days were the tribes on either side of the Thames.

It may, without stretch of the imagination, be suggested, therefore, that the time is not far distant when, unless foot-and-mouth disease is stamped out on the Continent of Europe, it will become endemic in the British Isles.

Internationalism, which is at present the political ideal of many, is not capable of being limited to policy and morals.

Nationalism, which is merely the principle of tribal "tabu" on a great scale, had, and yet may have, a solid scientific foundation in the protection of human and animal life from the epidemic diseases which were thus kept without the natural barriers of sea-girt countries, and even without the arbitrary frontiers of Continental races.

Clearly, therefore, the problem of the future protection of our live-stock is a task for the bacteriologist rather than the sanitary administrator. Not the butcher, but the combined efforts of the biological scientists of the Continent and this country working together will ultimately solve the difficulty.

Moses ordered his people to avoid pork because he knew no other means of surely protecting them from the intestinal parasites of pigs, but science has exalted the pig, and will as surely discover how to eradicate so relatively benign a disease as foot-and-mouth without enlisting the primitive help of the pole-axe and the bullet.

The moral is a simple one: subsidise research. Let the nation cast its bread upon the waters and retrieve it after many days in the form of healthy beef.

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Clinical Articles

ACUTE NEPHRITIS, WITH URÆMIA AS A COMPLICATION, IN A HORSE.

By Major H. ALLEN, R.A.V.C.,
Remount Depot, Saharanpur, India.

Subject.—Bay, Australian, gelding, foaled 1917; imported on January 31, 1923; received in Saharanpur Remount Depot on February 9, 1923; condition fair.

History.—Admitted into hospital on June 28, 1924, at 8 a.m., running a temperature of 105°, congested conjunctival mucous membranes, and off his feed. The following morning the temperature dropped to 103·8°, but the same evening it rose to 105°. Examination of blood smears was negative. At 5.30 a.m. of June 30, 1924, he developed symptoms which pointed to acute uræmia, probably occurring as a sequel to kidney disease.

Symptoms.—The animal appeared to be in a markedly dazed condition. Gait strained and stiff, and disinclination to move. Appeared unable to eat or drink. Conjunctival mucous membranes deeply congested—blackish-red in colour—with several petechia in membranes of both eyes. Temperature 102·2°. Pronounced torticollis of neck and head to the right side and marked clonic spasmodic contraction of the muscles of the off-side of neck. The chief muscle affected being the Mastoido-humeralis (M. Brachiocephalicus Levator humeri). Evidently due to spasm in the muscular distribution of the nerves accessorius Willisii, and the superior cervical nerve, etc. (Opisthotonus, I believe, has been observed in some cases of uræmic poisoning.) Labial paralysis of the upper lip and drawn to the left side, in consequence of paralysis of the inferior buccal branch of the seventh or facial nerve. At 2 p.m. he collapsed on the ground after reeling, and staggering, and with a great effort got on to his legs again mainly by means of his hind legs, as he appeared to have no power in his fore legs, but again resumed the recumbent position in about half of a minute, and remained alive for about two hours.

The patient appeared to be in a state of stupefaction and prostration, violent eclamptic attacks associated with torticollis. General sweating. Exhaled air and skin emanations had a marked urinous odour, due to excretion of urea, owing to the impediment of urine from the kidneys. (Uræmia is said to be due to an accumulation of urinary constituents in the blood and tissues, first the products of metabolism, resulting from decomposition of its albumen (ptomaines, leucomaines, and toxines), and then the urea and salts

of potash.) Body temperature 105·8. Eventually the patient became completely comatosed, and symptoms of uræmic dyspnœa with a blood-stained froth from both nostrils and amaurosis developed. Death occurred at 4 p.m.

TREATMENT.—Urine retention was relieved immediately by means of the catheter.

Balls containing chloral hydras and potassium bromide were prescribed.

Smears taken from the pelvis of the kidneys which appeared macroscopically purulent in appearance, on microscopic examination consisted entirely of apparently normal cells.

There were no leucocytes and no micro-organisms present.

POST-MORTEM.—Capsule of kidneys easily detached. Right kidney: pale and a washed-out colour. Body soft in consistence. Malphigian corpuscles prominent. Left kidney: blackish-red in colour. Soft in consistence. Malphigian corpuscles prominent. Œdema of lungs. Congestion of brain. All voluntary muscular tissue was very friable.

SEVERE BURNS FROM MOLTEN METAL. TREATMENT BY IODINE.

BY T. HEATHER, M.R.C.V.S.,
Sandiacre.

THE following case of intensive burning by molten metal and its treatment by iodine will, I hope, prove interesting and useful to the veterinary profession, especially to those members whose practices are situated amongst furnaces or smelting plants. The subject was a shire gelding five years old, about 17–1 hands high, the property of the Stanton Iron Works, Ltd., near Nottingham. This animal's work was to draw molten metal from the furnaces to a hydraulic lift, a distance of about 30 yards, in ladles containing about 8 tons of molten metal; this lift then raised it to a higher level (about 14 feet), and then take it from the lift to the foundry, where the metal was cast into pipes.

This horse was engaged on the work for about six months and was fully accustomed to it. About 8 a.m. on June 23rd of this year he took his ladle into the lift, the lift was set going, and the ladle raised to the upper stage. The horse was attached to draw the ladle off, and had just started when the upper part of the ram of the lift broke, tilted the ladle forward, with the result that the molten metal was thrown over the horse, covering his back, sides, quarters, abdomen, the back of his legs—in fact the only part

escaping was the head, neck, and front of the chest. The animal was removed to the stables as quickly as possible and dressed with a liniment consisting of—

℞ Liq. Iodin. (1–20)	1 part.
Aqua Calcis	1 part.
Ol. Lini.	2 parts.

The dressing consisted in painting the animal all over with the liniment, using a hair mop about 4 inches wide. I saw the animal about 9.30, and I can't remember ever seeing a more extensive case of burning, especially between the quarters and abdomen. I immediately had the horse painted over with the iodine liniment, and had it repeated every two hours until eight o'clock in the evening, then it was dressed every three hours. After the first dressing great relief was given to the animal, as he started feeding, although greatly distressed by the extent of his burns. He was fairly comfortable under the circumstances, and each dressing gave him more relief. He continued feeding well and was fed on grass fresh mown with linseed tea to drink, and bran hashes with a powder consisting of Mag. Sulp. ʒii.; Pot. Nit. ʒii; Pulv. Resinæ ʒii. Locust Meal ℥ss. three times daily in feed.

I saw the animal the same evening. His legs and burned parts started swelling, especially his sheath. For the first three days the dressing was repeated every three hours, powders given as before in food. Fourth day the animal was dressed every four hours. The legs and burned parts had swollen so much that he could scarcely move about.

On the fifth day I scraped his sheath and abdomen, getting rid of a lot of serum, with the result that on the eighth day he could move about in the box quite freely. The dressing was continued three times daily. On the ninth day he started knocking at the door of his box. By this time the swelling had nearly disappeared, he was feeding well, and moving about the box, hammering the door. I had him turned out in a paddock for a couple of hours, and continued turning him out, increasing his time out daily until July 7th, when he was turned out for good. On July 8th he was seen by Professor Hobday, and the only slough on him was a small one under the tail about ½ inch in diameter. The dressing was discontinued about July 10th, and as his skin was itchy I had him dressed with Ung. Hyd. Fort. ℥i; Sapo. Meth. ℥iii, rubbing it well into the skin and washing it off twenty-four hours after. This was done every three days. On the 23rd of July he was put to work on the grass and worked lightly daily during the hay harvest, and then on

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to farm work, and finally went back to his foundry work on October 29th, and is doing his work daily fit and well.

I first tried iodine in the treatment of burns about twenty years ago, and found that one got no sloughing. Before I tried the iodine I used Carron oil or Liq. calcis and Linseed oil in equal parts. Tinct. of iodine I have tried, but I prefer it in oil with Liq. calcis. You do not get cracking of the skin or sloughing. Since using the above treatment, I have not lost a single horse with burns.

The reason I work horses so early is that horses have such wonderful memories, and if not put to light work as soon as they are reasonably fit, they wont work very well. They are very nervous after the great shock to their system through burns. When this animal went to the foundry work it took two men to work him, and they had plenty to do. He has settled down to work now, but wants careful management.

EYE-BOARD AND CATOPTRIC TEST *VERSUS* OPHTHALMOSCOPE. A WARNING.

By Major H. ALLEN, R.A.V.C.,
Remount Depot, Saharanpur, India.

History.—A charger was returned to the depot on account of "unsound eyes."

It was stated that a catoptric eye-test had revealed an imperfect image on the posterior face of the lenses and that the horse was nervous about the head and shied.

The horse in question had been in the depot since February 13, 1923, and his eyes had been examined four times with the eye-board test before issue. No disease defects had ever been noticed in the cornea, anterior chambers, or lenses.

The horse had been regularly ridden and taken across country, and no complaints had ever been made as regards his defective eyesight, or its being awkward in handling his head.

I examined his eyes in minute detail with the ophthalmoscope on return to the depot, with the following results:—

Case 1.—Retinitis with optic atrophy.

Retinitis with involvement of optic nerve, and "cupping" (optic atrophy).

Optic disc very distinct at margin of lower segment but blurred in upper segment.

Vessels could not be traced into the middle of the optic disc, but disappeared at periphery.

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Upper segments of field of retina very white, with a greenish tinge and scattered about small reddish areas.

Retina at region of disc gave a red reflex, but it was very patchy.

All the media were quite clear from cornea to vitreous humour.

Eyeballs equal.

Eyeball tension apparently normal. Blurring of the third Purkinje-Sanson inverted image.

My experience tends to the fact that specific ophthalmia amongst Australians in India may sometimes affect the anterior portion (cornea, iris, ciliary bodies, and aqueous humour) of the eye without involving the posterior portion (posterior chamber, lens in its capsule, vitreous humour encased in the hyaloid membrane, and the optic disc) at the same time.

Included in the above portions of the eye are the coats, the posterior five-sixths of which are the sclera, the choroid, and the retina. The anterior one-sixth is formed by the transparent cornea affecting the anterior portion of the eye.

Specific or periodic ophthalmia of the eye is really an iridocyclitis or uveitis (the first part affected being the iris).

The inflammation spreads along the uveal tract affecting the ciliary bodies, iris and choroid, but in the case of the latter the exudate passes into the vitreous or posterior chamber.

The condition may spread in some cases until the whole of the eye becomes eventually involved.

I have seen many cases of rapid atrophy of the eye or eyes, and resultant complete blindness, but the disease has started in the anterior chamber of the eye. In these cases practically *all* the tissues in the eye were involved to a greater or lesser extent. In all the forms of optic neuritis, retinitis, and choroiditis, except the purulent type and those associated with iritis, there is no pain and no external evidence of the disease.

Post-mortem examination of eyes of "casters" affected with specific ophthalmia showed a marked blurred and imperfect third inverted Purkinje-Sanson image with the catroptic test before destruction.

P.-M. *Case* 1.—Well marked atrophy of the retina.

A light opalescent band running across the retina.

Distinct inflammatory atrophy of optic discs.

P.-M. *Case* 2.—Very much the same as Case 1 except that there was more degeneration of the retina and it appeared to be thinned in patches.

Inflammatory atrophy of the optic nerves.

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Both Cases 1 and 2 are evidently primary atrophy of the retina, and secondary atrophy of the optic nerve.

P.-M. *Case* 3.—Post-mortem examination of apparently normal eyes :—

Purkinje-Sanson images clearly defined.

One eye examined.

Optic discs appeared normal.

Large green opalescent patch on retina, evidently due to degeneration.

At periphery traces of two bloodvessels (arteries), appearing a bit engorged.

P.-M. *Case* 4.—Healthy retinæ with even colouring and pink discs.

Discs slightly raised.

P.-M. *Case* 5.—One eye showed an opalescent band running vertically across the retina between macula and optic disc.

Evidently a physiological streak.

P.-M. *Case* 6.—Eyes appeared perfectly normal as regards the retinæ and optic discs.

Pigmentation even, and no patches of any kind.

EXAMINATION BY OPHTHALMOSCOPE.

Case 2.—Very defective vision both eyes.

Optic disc shows marked cupping.

Vessels smallish and wander about whole disc in extraordinary curves, showing in one or two instances figure of 8 bends.

Periphery of optic disc very distinct, all around edged with very distinct pigment.

Usual signs of retinitis pigmentosa on upper segment of fundus.

Both eyes practically the same.

Case 3.—Atrophy off eye. Opacity lower portion off cornea. Defective vision both eyes.

Right eye shows degenerative changes in retina and optic disc.

Retina much degenerated and practically no red reflex anywhere.

Retina at region of disc very grey.

Cupping of disc.

What appears to be a small hæmorrhage at two o'clock at disc.

Near eye the same without hæmorrhagic patch and reddish reflex about disc.

Going across middle of left disc is a looping vessel, which cannot be traced into margin of disc and stands well away from disc.

Case 4.—Cataracts both eyes.

Posterior synechia off eye, and atrophy off eye.

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Very patchy fundus.

Reddish patches mixed with greenish patches.

Obviously degeneration of retina.

Near eye same as off, but not to same extent (advanced).

Case 5.—Complete cataract near eye, posterior synechia and marked atrophy.

Examination of off eye showed atrophy of optic disc and very white in colour.

Case 6.—Eyes apparently normal.

Whitish-green reflex both eyes, otherwise normal.

Case 7.—Eyes apparently normal.

Red reflex both eyes, otherwise normal.

Case 8.—Pin-point cataract near eye.

Red reflex, otherwise normal.

In my opinion many cases of defective or impaired vision are cases of right and left homonymous hemiopia. Right and left homonymous hemiopia being due to some defect of the optic nerves, tracts, or visual centre supplying the left or right half of each retina respectively.

This is on account of decussation of the optic nerves.

When there is some defect of the inner half of each retina or its optic nerve supply, you get both outer fields obliterated and is called bitemporal hemiopia.

If the inner fields are obliterated (binasal hemiopia) the outer half of each retina is involved.

Fields of vision are greatly contracted in diseases of the optic nerve and retina.

Post-mortem results reveal that they are cases of scotoma, as portions of the retina are destroyed by reason of disease or atrophy of the retina, the field of the eye or eyes at those points being in consequence unable to function.

Many horses with normal eyes shy, as 90 per cent. are said to be myopic, and distant objects are not clear until they come suddenly upon them.

A healthy retina is essential, as its function is to receive the image focussed by the refractive media, which is conveyed through the optic nerve to the sight centre in the occipital lobes.

CONCLUSIONS—*Case* 3.—Showed three perfect images with Catoptric test on the three planes, proving that the media were normal.

Post-mortem examination of the eye showed a large patch of retinitis between the disc and macula lutea (a small yellowish

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sensitive spot corresponding with the central vision at the posterior pole in the retina).

The macula itself appeared to be undergoing degenerative changes.

There were two engorged arteries at the periphery near the ciliary region.

The optic disc seemed fairly normal, and it was not actually round, but rather slightly oval.

This case points to the fact that the ophthalmoscope is the only true test at arriving at a definite diagnosis of all eye conditions, practically from the cornea to the fundus.

A little training and practice with the ophthalmoscope would render examination extremely easy and rapid. The medical profession recognise ophthalmoscopic examination of the eye-ground as one of the most important methods of examination.

The third image evidently only gives you the condition of the posterior reflecting surface of the lens, and demonstrates no indication of pathologic conditions in the retina.

AMPUTATION OF THE UTERUS IN A COW.

By F. L. HAYDON, M.R.C.V.S.,
Midsomer Norton.

A short time ago I was called in to see a shorthorn cow, seven years old, with complete eversion of the uterus. She had calved the day before and was lying down. The uterus was in a very bad state indeed, as it had been everted all night, and a bull in the next stall had trampled on it and torn it. After washing and cleansing it with antiseptic, I tried every way I could think of for about four hours to get it back, but I was unable to do so, and decided, with the consent of the owner, to perform amputation. Having no chloroform mask with me, I improvised the cowman's hat, boring a hole on either side of the rim and fixing it in front of the nostrils by the aid of two pieces of string which I tied between the horns. I commenced with about a couple of ounces on some cotton wool. Not being prepared for this operation, and having no instrument with me, I borrowed some tape and a packing-needle from the farmer. I passed the needle through the centre of the narrowest portion of the everted neck and tied it off on either side as tightly as possible, doing this a second time to make sure. With a knife I then amputated below the ligature. I afterwards gave the cow a whole bottlefull of whisky mixed with water, and beyond this she had absolutely no after treatment, making an uneventful recovery.

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A DELICACY IN UGANDA.

By A. N. FOSTER, O.B.E., F.R.C.V.S.,
Uganda Protectorate.

About five months ago, in the ordinary course of my duty, when inspecting a kraal of cattle reacting to inoculation against contagious bovine pleuro-pneumonia, I noticed one cow with " retained placenta." I cleansed her, and gave instructions that the after-birth should be removed from the kraal and burnt immediately. Very much to my surprise, the local chief asked me if I would allow the owner of the cattle to have it boiled as he wanted to *eat* it. Naturally I raised no objection.

The people concerned belong to the Teso tribe ; they own large herds of cattle, and inhabit a large portion of the Eastern Province of Uganda.

I had never heard, before the occurrence of the above related incident, that the after-birth was looked upon by any human beings as a delicate morsel of food ; though, of course, it is a well-known fact that many African natives habitually consume the flesh of cattle which have succumbed to any disease. I have also often been told that some Europeans were very keen on a bit of " still-born " veal.

A CONTAGIOUS PLEURO-PNEUMONIA AFFECTING SHEEP AND GOATS.

By W. F. POULTON, M.R.C.V.S., S.V.O.,
Kampala, Uganda Protectorate.

In March 1915 I received reports of heavy losses occurring amongst the sheep and goats at Simba and other military posts on the Southern Frontier in Uganda, and as these animals were factors of considerable importance as providing the Indian Troops with a necessary meat ration, early investigation into the cause of death was necessary.

History.—The goats and sheep were sent from centres at Mubendi, Kampala, and Mbarara, being travelled by road to Simba, which was the distributing centre for the southern sector.

En route the animals had been in shelters at night, when such were available, and travelled slowly during the day, " grazing " and water being obtained on the roadside.

There would be, however, a considerable degree of exposure experienced by the sheep and goats, for the rainy season had begun and had proved abnormally heavy.

Various drovers informed me that the losses experienced during trekking varied from 5 per cent. to 50 per cent., and that the greatest number of deaths occurred amongst the caprines.

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Further investigation showed that the animals resident in the Mubendi, Kampala, Mbarara, and Simba, areas remained healthy, as did those situated in the country through which these "supply" sheep and goats were driven.

The disease was again met with at Malero in ex-German East Africa in 1916.

I immediately had all the goats and sheep killed, and advised the Supply Officer to purchase no more goats in that locality.

SYMPTOMS.—These resembled those of Takosis to a marked degree.

Early symptoms were shown by the affected animal lagging behind the herd, and, on closer observation, it was seen that the respiratory rate was greatly accelerated. A slight cough was also manifest.

The temperature rose to 107° F. in certain cases, but fell, usually to subnormal, a few days before death. The lowest temperature recorded was 95° F.

Within three or four days of initial infection a nasal mucous discharge was seen, whilst the cough became more frequent.

The onset of diarrhœa, of an extremely offensive odour, at a varying period after infection was common.

As the disease progressed, the animal became rapidly weaker, the nasal discharge became more profuse, whilst emaciation occurred. In one case an animal weighed 50 lb. at date of inoculation with the virus, and 24½ lb. at death. The appetite persisted almost to the last, when the goat would lie with head turned to flank, and be unable to rise.

The mucous membranes were pale in colour.

The following figures may prove of some interest :—

The total number of post-mortems made was 303 ; 232 being on goats and 71 on sheep.

Amongst goats the cause of death, as far as could be ascertainable, was :—

1. Pneumonia, 216 ; of which 81 were gangrenous.
2. Strongyles, 8.
3. Not diagnosed, 8.

Amongst sheep the results obtained causes were :—

1. Pneumonia, 48 ; of which 7 were gangrenous.
2. Strongyles, 22.
3. Not diagnosed, 1.

POST-MORTEM—*Externally*.—The carcase was emaciated, nasal discharge evident, as was diarrhœa.

Mucous membranes anæmic.

Internally.—In the *thorax*, the *lungs* were, in a large percentage of cases, affected with pneumonia, not rarely gangrenous in character,

with pleurisy, and accompanied by effusion, which was frequently of putrid odour.

The greatest quantities of this pleuritic fluid measured were 350 c.c. in one case, and 400 c.c. in a second subject.

The heart was frequently enlarged and flabby, with an occasional increase in the pericardial fluid, which, in one case, measured 50 c.c.

When there was marked pleurisy, it was not uncommon to find the pericardium covered with a jelly-like substance, apparently mucoid in character and greenish in colour.

Other cases showed attachment between the lung and the parietal pleura.

In the abdomen the liver and kidneys appeared to be normal.

The abomasum was commonly found to be infected to a varying extent with a strongyle—*S. convolutus* ?—with a consequent inflammation.

Emphasis must be placed on the fact that the number of strongyles and the degree of inflammation present varied to a marked extent.

This infection was more pronounced in the sheep.

DIAGNOSIS.—One was convinced that a distinct pleuro-pneumonia was the cause of death, but it appeared desirable to carry out certain experiments to exclude the following conditions :—

(*a*) Takosis.
(*b*) Heartwater.
(*c*) Parasitism.
(*d*) Pneumonia as previously described.

Subsequent work appeared to confirm the original diagnosis of a type of contagious pleuro-pneumonia.

TREATMENT.—No specific treatment was found to give satisfactory results, but attention was paid to the hygienic conditions, etc.

Animals showing obvious symptoms were segregated, and killed off as rapidly as possible.

Plentiful supplies of salt were given, and much appreciated by the animals ; one goat drank over 1½ gallons of salt solution in one draught.

Good grazing was found close at hand, up the slopes of hills, and at night the stock returned to a well-built, ventilated and drained house.

This was sprayed with strong Jeyes' solution as often as possible ; approximately every third day.

It was not possible to graze in small herds, and neither was it deemed desirable to remove the sheep and goats to hills four miles distant, owing to the war conditions then prevailing.

To deal with the possibility of a tick-borne disease resort to dipping was made, but the percentage of deaths was not lessened.

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The infected were killed off, the weather became drier, and conditions apparently favourable to a marked lessening of the disease supervened.

There was, however, no marked lessening in the percentage of deaths, although one can affirm that the course of the disease was less rapid, with a consequent greater number of animals available for food purposes, as good housing, with careful feeding and salt, certainly appeared to retard the course of the disease.

Infection, once introduced, seemed impossible to be eradicated with the conditions as they then prevailed.

BACTERIOLOGY.—Smears taken from the lungs and stained by Leishmann's method occasionally showed small pasturella-like bodies.

Beyond putrefactive bacilli, no abnormality other than anæmia was seen in blood films.

I regret that the list of the slides examined has been mislaid, but the number seen was approximately 150.

EXPERIMENTAL WORK ON DIFFERENTIAL DIAGNOSIS.—Investigation was carried with the objects of—

(*a*) Confirming the diagnosis.
(*b*) Assembling facts concerning what appeared to be a newly reported disease.

In all experiments blood was taken from an infected case and injected subcutaneously.

All temperatures were taken in the morning and before 8 a.m.

The following facts appear to exclude the four conditions to which the deaths might have been attributed:—

REFERENCE TAKOSIS.—1. Two fowls were inoculated with 1 c.c. of goat's blood, but no reaction was obtained.

Five c.c. of the same sample of blood infected a sheep.

2. Sheep reacted to goat virus.

WITH REFERENCE TO PARASITISM.—1. The contagious character of the disease, the readiness of infection following upon subcutaneous injection of virulent blood, and a case of infection occurring on proximity, without contact, of a susceptible to an infective, showed this condition was unlikely to be responsible for the heavy losses.

Post-mortem results supported this view.

WITH REFERENCE TO HEARTWATER.—1. Dipping did not seem to have any effect on the spread of the disease, other than that one would expect to see a tick-free animal in better condition than a tick-infested.

2. The pericardial fluid did not clot; only in one case was this observed.

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WITH REFERENCE TO PNEUMONIA AS PREVIOUSLY DESCRIBED.—Goats and sheep were both infected by either contact or by subcutaneous inoculation one to the other.

The following experiments were carried out as direct investigation into the disease :—

EXPERIMENT I.—*To ascertain the relative mortality between sheep and goats.*

(*a*) Sheep Nos. 8–13, and goats Nos. 1–6 were segregated on showing early symptoms of the disease.

All the goats were dead at the expiration of one week, with all the symptoms and lesions of pleuro-pneumonia.

Four sheep died with similar symptoms within ten days, and two sheep survived.

(*b*) Sixteen apparently healthy goats were segregated on April 29th, and were all dead from pleuro-pneumonia by May 6th.

Sheep Nos. 1–6 were segregated on May 11th, Nos. 1 and 2 showing the early symptoms of pleuro-pneumonia.

Death of Nos. 1 and 2 occurred on May 13th and 21st respectively.

Sheep No. 3 developed symptoms early and died on the 29th instant.

Nos. 4, 5 and 6 contracted the disease and recovered.

(*c*) Forty goats arrived from Mubendi showing an 80 per cent. infection, many subjects showing the disease to be well advanced.

They were segregated on May 3rd, and 35 had died by May 6th.

EXPERIMENT II.—*To ascertain the relative susceptibility between sheep and goats.*

Goat No. 7 and sheep No. 14 were placed in a boma containing infected sheep and goats. The goat developed all the symptoms of pneumonia within ten days after admission and died.

Sheep 14 did not react, although proved at a later date to be susceptible.

EXPERIMENT III.—*To ascertain if goat's virulent blood was infective for sheep.*

(*a*) Sheep No. 14 received 5 c.c. goat's blood on May 30th.

Typical nasal discharge was seen on June 12th, the temperature rose to 106·6° F. on the 16th instant, and the animal died on June 30th.

(*b*) Sheep No. 15 received 5 c.c. infected goat's blood on June 21st.

Four days later the temperature rose to 106·8° F. and nasal discharge was observed on the 27th instant, but an improvement was shown by July 7th, and on July 30th the animal appeared relatively normal.

Death supervened on August 1st, post-mortem examination showing an enlarged heart, pleurisy and pneumonia.

(*c*) Sheep No. 7 received 5 c.c. of infected goat's blood on May 12th.

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No marked elevation of the temperature was recorded, but death from pneumonia occurred on May 23rd.

EXPERIMENT IV.—*To ascertain the susceptibility of sheep virus for goat's.*

Goat No. 8 received 5 c.c. of sheep's blood on May 21st.

Temperature of 106·2° F. was recorded on the 25th instant, and nasal discharge observed on the 27th instant.

A prolonged period of illness ensued, nasal discharge continuing almost throughout the whole period, the animal succumbing to pleuro-pneumonia on July 20th.

Continued work on this point was held up owing to the impossibility of obtaining a further supply of clean goats.

EXPERIMENT V.—*To ascertain if recovery conferred immunity.*

Sheep No. 10—see Experiment 1 (*a*)—received 5 c.c. of goat's blood on July 3rd.

Nasal discharge appeared on the 13th instant, and the temperature rose to 104·4° F. on the 25th. The animal made an uninterrupted recovery.

Early in August a further 5 c.c. of virulent blood from a goat was given, and a mild reaction resulted. Owing to the prevailing conditions it was not possible to carry out the original intention of triplicating the above experiment with the view to producing a hyper-immunised animal and the possible production of a protective serum.

EXPERIMENT VI.—*To ascertain if contact alone sufficed for infection.*

On May 20th goat No. 7 was placed in a separate pen situated in a boma containing six goats and six sheep all infected with pleuro-pneumonia. A temperature of 104·2° F. was registered on the 28th, when a slight nasal discharge was observed, and the animal was then removed and kept under the most favourable conditions.

Nasal discharge persisted until the 19th instant, when the goat showed a general and maintained improvement in condition, and was apparently healthy on January 1, 1916.

EXPERIMENT VII.—*To ascertain if proximity without contact would suffice for infection.*

Sheep No. 19 was penned, on June 19th, 50 yards from confined infected cases. The animal remained healthy until July 18th, when nasal discharge was observed, death from typical pleuro-pneumonia supervening on July 26th.

I consider it not improbable that the attendant may have visited the neighbouring pens of the infective.

CONCLUSIONS.—From the few observations made on this disease it appears not altogether impossible that a certain organism, possibly

the small pasturella-like bodies observed, is a constant habitat in the lung of the goat and sheep.

That under unfavourable conditions, such as experienced by the animals when driven long distances, the general resistance of the hosts is lessened and the organism develops a marked pathogenicity, becoming capable of originating a serious outbreak.

This hypothesis appears to supply the only solution to the fact that the goats left a clean area in a healthy condition and developed the disease after several days' journey, despite the fact that the animals resident in villages situated in the areas through which the goats were travelled remained healthy.

The disease appears more easily transmitted to goats than to sheep, and involves in the former case a loss of from 90 to 100 per cent. of infectives.

Moreover, in the caprines the condition ran a more rapid course, with pleuritic effusion and gangrene a more common sequel.

Cross infection was easily achieved, but under natural conditions it was observed that sheep appeared more resistant to infection.

The approximate distances travelled by the goats and sheep were :—

Kampala area—Simba	133 Miles.
Mbarara area—Simba	85 ,,
Mubendi area—Simba	125 ,,

A CANINE MONSTROSITY.

By H. R. HEWETSON, M.R.C.V.S.,
Southport.

I was called one evening to a Sealyham bitch, fourteen years old, but in good general health and condition. The owner informed me that she had regularly been bred from up to being seven years old, but had not been mated subsequently; in fact she had not been noticed in season from the time she was eleven years old until about two months before I was called in, and then only showed slight signs for about two days. During this period, however, she had escaped for about an hour and a half, and when I saw her she was apparently about to whelp. The labour was only very weak, and I could not detect a puppy by external or internal manipulation. I prescribed liquid extract of ergot and left her overnight. The following morning something could be felt in the passage which I removed. It proved to be a dead fœtus, normal as to skin, hair, ears, legs, tail, etc., and all internal organs, but entirely devoid of any bony structure, and the whole mass could be rolled up like a piece of cloth. A normal afterbirth came away at the same time, and the bitch made an uninterrupted recovery.

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ATRESIA OF THE ANUS AND RECTUM.

By A. McLEAN, M.R.C.V.S.,
Belfast.

Subject.—A fox terrier puppy, five months old (male).

History.—Brought to the University Clinic on account of the absence of an anus, and with a history that when urine was passed it was always turbid.

The puppy seemed to suffer no inconvenience and was in fair condition, but was much smaller than the other members of the litter.

Operation.—The patient was anæsthised and an attempt made to reach the rectum and bring it back into the wound and suture it there. After making an incision about ½ inch to ¾ inch deep on the anal region, the rectum was still out of reach, and the patient was allowed to pass away under the anæsthetic.

On post-mortem examination there was a complete absence of rectum, and the colon was found to communicate with the urethra by means of two slit-like openings through which the contents escaped.

ANKYLOSTOMIASIS (HOOK-WORM DISEASE) IN A KENNEL OF AIREDALES.

By Major H. ALLEN, R.A.V.C.,
Remount Depot, Saharanpur, India.

Other names given to this disease are uncinariosis, dochmiasis, pernicious anæmia, kennel anæmia.

Bleeding at the nose.

I was asked to investigate the high mortality amongst the pups of a large Airedale kennel.

Twenty-nine out of thirty-eight pups had died during the current year, and one full-grown dog, showing similar symptoms.

The kennel hygiene was anything but modern in character.

Cubic air space and ventilation was deficient.

No pretence of drainage.

The kennel was built on low-lying ground and without a plinth.

Dampness is a serious consideration in hook-worm disease, as it favours completion of the life history of the parasite.

The general cleanliness of the kennel was very unsatisfactory.

Hook-worm disease prophylaxis hinges on cleanliness and widespread disinfection.

Insufficient attention was being paid to the watering and feeding utensils.

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Fæces were not being incinerated.

Too many dogs, including pups, were collected in a small area.

Ankylostomes belong to the class Nematoda of *Phylum nemathelminthes.*

Ankylostoma caninum.

Uncinaria stenocephala.

Ankylostoma duodenale (old world hook-worm of man).

Necator Americanus (American hook-worm of man). Hook-worms occur also in sheep, goats, and ox.

We are only concerned with one and two in this article.

They have a white body abruptly narrowed near the head and bent (hooked) upwards.

The *A. caninum* is about ⅛ to ½ an inch in length.

The *U. stenocephala* is about ¼ to ⅓ inch in length.

The *A. caninum* has six prominent curved teeth near the ventral border of the mouth capsule.

The mouth parts of the *U. stenocephala* have cutting plates but no curved teeth.

The eggs of hook-worms are ovoid, and thin shelled.

Clinical symptoms of the disease are easily confirmed by microscopic examination of the surface layer of fæces by finding the eggs.

Habitat: dogs, cats, foxes, and jackals (small intestines).

Larvæ developed from eggs passed out in fæces are capable of infecting dogs by way of the mouth or the skin.

The larvæ in the host enter the bloodstream, work their way to the lungs, enter the air passages, ascend the trachea, and are swallowed, and later on become adult worms in the intestine.

Gaiger in *The Journal of Tropical Veterinary Science*, Part III, Vol. VI, of 1911, mentions that fifty pariah dogs (Indian) destroyed with hydrocyanic acid revealed on post-mortem examination 38 per cent. of *Ankylostoma* and 90 per cent. *Tæniæ.*

Hook-worm disease, I understand, is responsible for serious loss amongst dogs in America, but is said to occur usually in numbers too small in England to produce disease.

The symptoms in canine practice are somewhat similar to that seen in man.

Symptoms.—All the pups showed the same symptoms. Anæmia, weakness, emaciation and marasmus, marked dullness and depression, No appetite, foul-smelling breath. Visible mucous membranes very pale. Dry tongue. Distended abdomen. Skin dry and scurfy. Patches of eruption inside thighs, elbows, belly, and in some on body.

Some of the pups had fits. Blood-stained fœtid diarrhœa occurred as a final symptom. Death was ushered in by coma and convulsions.

I have recently seen two cases with muco-purulent discharge from the nose, which eventually became blood-stained, and later blood was passed at irregular intervals.

The ratio of young worms introduced from without must have been very high, as they cannot develop from the egg to maturity in the small intestine of the dog.

Symptoms are said to appear after two to four weeks after infection.

POST-MORTEM EXAMINATION.—Visible mucous membranes very pale. Muscular tissue pale and very friable. Blood lacked the usual deep-red colour, and was thin in consistency.

Petechiæ in the small intestines, and in majority of cases marked thickening of the mucosæ.

H. Cooper, Pathologist, Imperial Bacteriologist Laboratory, Muktesar, very kindly reported on a portion of small intestine forwarded by me :—

"The mucous membrane shows no marked evidence of lesions, although lesions are difficult to appreciate in fixed material of this nature. There is no marked ulceration, but perhaps a slight diffuse thickening and roughening is present. Examination of the small amount of intestinal contents present revealed thirty-six Ankylostomes, and a "Sheather" preparation made from half of the same contents showed in one smear forty-four eggs of this parasite. It would appear to be not improbable that the deaths among the puppies are due to the effects of ankylostome infection."

TREATMENT.—Five pups have been sold and left the kennel at six weeks of age.

I removed the remaining four pups from the kennel, took one myself for personal observation, and the other three were put under charge of three of my veterinary assistant surgeons.

They were all in a miserable state of health, and very weak. Two months have now elapsed, and they are to all appearance strong, well-conditioned, and healthy pups.

The four were given three courses of Ol. Chenopodii with other drugs as recommended by E. Wallis Hoare in his *Veterinary Therapeutics* (Appendix, pp. 870, 871). One course of Tenaline. I gave the pups in my possession one course of Marsden's prescription for hook-worm :—

Ol. Eucalypti., ℥xx ; Spts. Chloroformi., ℥xxx ; Ol. Ricini, ʒiv.

After usual period of preparation by starvation, give half of above dose early in the morning on an empty stomach, half an hour later give the second half, and two hours later half an ounce castor oil.

I intend giving Carbon Tetrachloride, followed up with Mag. Sulphas a trial later on, although it is a drug which has to be administered with great care. All pups passed hook-worms, *Dipylidium caninum* (melon-seed tapeworm) and *Belascaris marginata*. The presence of *D. caninum*

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denoted another defect in the kennel management, as the intermediate hosts are fleas or biting lice.

Adult Tapeworm.	Aystic Stage.	Intermediate Host.	Habitat.
Dipylidium caninum or *T. cucumerina*	*Ayptocystis trichodectis*	*Pules irritans, Ctenopcephalus, Sp. Trichodectes latus* (fleas and lice)	Small intestine of dog and cat

Fleas are infected as larvæ; the cryptocystis takes place when the larval flea changes to an adult.

Biting lice become infested on the dogs' skin, the result of eating fæcal matter containing tapeworm eggs.

It is of interest to note that M. C. Hall, in an article on "Internal Parasites of Dogs and Cats in the United States," recently published in the *Journal of the American Veterinary Medical Association*, mentions in the summary that a total of forty-seven parasites have been reported, and will probably exceed fifty eventually.

REFERENCES.

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BACILLARY WHITE DIARRHŒA OF CHICKS.

By THOMAS DALLING, M.R.C.V.S., and H. R. ALLEN, M.R.C.V.S.,
Wellcome Physiological Research Laboratories, Beckenham, Kent.

Summary of paper read at the Eighth Annual Poultry Conference, Harper-Adams Agricultural College, Newport (Salop), on August 7, 1924.

The present work on bacillary white diarrhœa at the Wellcome Physiological Research Laboratories was begun early this year. Bacteriological examination of chicks received from Scotland and England resulted in the isolation of twenty-seven strains of *B. pullorum* from yolk sac, liver, blood, spleen and lungs. In one case *B. pullorum* was got from lungs only, all other organs appearing normal, an interesting fact in view of the prevalence of so-called "brooder pneumonia."

The following experiments have been carried out in relation to the reproduction of bacillary white diarrhœa:—

1. *Subcutaneous inoculation of a living culture will cause death of the chick.* Two chicks each received a subcutaneous inoculation of a living culture of *B. pullorum*: they became obviously ill on the second day, and died on the fourth and fifth days respectively. *B. pullorum* was recovered from heart-blood and liver.

2. *Feeding of living culture by mouth will produce bacillary white diarrhœa.* (*a*) Three day-old chicks were fed 0·5 c.c. of an agar culture of *B. pullorum* in saline (1,000 mill. per c.c. strong): all died between the second and fourth days.

(*b*) Three chicks similar to above were fed with broth culture of *B. pullorum* instead of agar culture. All died between fourth and fifth days later. In (*a*) and (*b*) *B. pullorum* was recovered from the heart-blood and liver.

3. *Small amounts of culture will produce bacillary white diarrhœa.*

Chicks.	Dose of Culture.	Results.
3	0·1 c.c. 1,000 m. per c.c. emulsion	3 dead, second and fourth days
2	1/100 dose	2 dead, sixth day.
2	1/1,000 dose	2 dead, sixth day.
2	1/10,000 dose	1 dead, sixth day.

4. *Ages of chicks susceptible.*

Age when fed.	No. fed.	Died.
1 day	3	3
2 days	3	3
3 days	3	3
4 days	3	3
5 days	3	1
6 days	3	0

5. *Time between infection and appearance of disease.* Experiments showed that symptoms of disease appear in from twenty-four hours to three days following ingestion of the culture. In one case a period of ten days elapsed. Deaths occur in twenty-four hours to five days following the appearance of symptoms.

Sources of infection discussed in the paper are: (*a*) Through the egg from the "carrier" hen. (*b*) Chick to chick. (*c*) Indirect methods. (*d*) "Carrier" hens infecting "normal" hens. (*e*) Spread through the male bird. (*f*) Feeding chicks on boiled eggs from incubator. Experiments are in progress to clear up these points; the following only have been concluded:—

1. *Chick to chick.*

	Chicks fed.	Deaths.	Chicks in Contact.	Deaths.
(*a*)	3	3	6	4
(*b*)	3	3	6	1

Chicks were fed when one day old, and the in-contact chicks were placed with them when one day old.

This experiment also shows the effects of crowding chicks when exposed to infection. Group (*a*) were crowded in a small box; Group (*b*) had ample accommodation.

2. *Retention of infection by litter, etc.*

May 19, 1924.—Two chicks in fed box with culture *B. pullorum*. Both died. Box left untouched.

June 19, 1924.—Three chicks placed in box. Two died from bacillary white diarrhœa, *B. pullorum* being recovered from them.

The view is held in this country that there may be several diseases grouped under the term bacillary white diarrhœa showing identical clinical symptoms and post-mortem lesions.

Diagnosis of " carrier " fowls is being worked out.

Serum agglutination tests have been made on large numbers of birds, and experiments are in progress to verify the reliability of this test as a means of eradicating the disease. Egg albumin agglutination tests are also in progress and favourable results are being got. Intradermic testing with filtrates is being carried out in conjunction with serum and egg albumin agglutination tests.

The laboratories now possess an experimental flock of (*a*) high titre agglutinators, (*b*) low titre agglutinators, and (*c*) normal birds. These are being bred from in various ways, and it is anticipated that results of such breeding will be available by next spring.

It will be obvious that most of this work was planned on the lines of the well-known American researches.

Translation

A NOTE ON OPERATIONS WITH LAPAROTOMY IN CARNIVORA DURING THE LAST SEVENTEEN YEARS

By DR. FRANZ BENESCH.

(*Wiener Tierärzt. Monatschrift*, September, 1923.)

The clinic of the Vienna Veterinary School annually provides copious material in spontaneous and difficult parturition cases in flesh-eating animals. Naturally in Vienna in the course of a year in many different breeds of dogs studies and observations are made in simple and instrumental obstetric cases, but there are also many parturition cases brought about by the help of abdominal surgery. My observations chiefly furnish a statistical résumé of operations combined with laparotomy during the last seventeen years, but they also indicate startling advances and improvements that have been made during this period.

Grouping.

1. Sectio cæsarea conservativa.

2. Section with partial or total extirpation of the diseased gravid uterus.

3. Total extirpation of the ailing but not gravid uterus.
4. Herniotomy in descent of the non-gravid or gravid uterus.
5. Castration.

General Review.

In the period from 1906 to 1923, 684 laparotomies were conducted in the clinic, which resulted in 513 cures and 171 deaths. This corresponds to a cure result of 75 per cent. The number of cases operated on by Professor Keller was 398, with a cure result of 300, or 76 per cent. Of 261 animals operated on by me from January 1918 to May 1923, 196 recovered, or 75 per cent. In 25 animals operated on by other gentlemen of the clinic, recovery took place in 17 cases, or 68 per cent.

1. *Sectio Cæsarea Conservativa.*

Cæsarean section as an abdominal operation in aiding parturition was relatively the least dangerous and the simplest to perform. During my regime 261 sections were undertaken, with 81 per cent. of successes. The number of deaths, namely 19 per cent., may at first sight seem high. If, however, we call to mind that at the beginning of the operation period a strict discrimination of the bitches to be operated on was not made, and that in the course of many years' experiences improvements have since been made in anæsthesia and operation technique, we must grant that the general results are not unsatisfactory. I believe that it could be proved that in the last eight years the recovery figure has been raised to 87 or 90 per cent. I believe that as causes of death organic changes or complications figure almost exclusively, and these are associated with the operative procedure or the state of pregnancy, but this cannot be stated with certainty. We noted such things as endocarditis, chronic nephritis, degeneration of the heart muscle and pericardium, hæmorrhagic gastro-enteritis, Stuttgart disease, placental ulcers, etc. In only a comparatively small number of cases could peritonitis with its sequelæ be proved on post-mortem as having arisen primarily from the operation itself.

The advances in conservative cæsarean section that have been gained through our experiences are due to three chief factors:

(*a*) *Strict Discrimination of Cases.*—The best prospects of success are to be expected when the previous history and examination at the time show with certainty that the uterine contents are fully developed. The time of rupture of the fœtal envelopes, the state of the body temperature, and general condition of the animal are important points. The disturbances in function of the vital organs (heart, lungs, intestines) are very unfavourable and quite apparent factors. In such cases we combine instrumental extraction with laparotomy.

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(*b*) *Improvement of Narcosis.*—A conscientious operation on the abdominal cavity to aid parturition means that deep narcosis is essential. The circumstance that the veterinary surgeon has to operate on bitches of different breeds which are very effeminate and pampered, with little constitutional force, as well as on very powerful dogs, makes a corresponding modification and caution in the use of individual narcotics advisable. In young and resistant animals we use the combined morphia and inhalation method, in older animals and those of small breed only inhalation narcosis, or in certain well-marked conditions the combined method also. We have had varying results with Kuhnemann's method, and not unfavourable results through narcosis in union with and accompanied by injections of grape sugar intravenously. Generally I can affirm that the office of a good narcotiser in parturition operation cases is by no means a very simple one.

(*c*) *Improvement in Operation Technique.*—The method of incision through the linea alba was the principal one at first. This may have been because foster-mothers were easily procurable before the war. In many cases the failure of nursing bitches led to evasion of the mammary region and operation through the flank. This choice of region for the abdominal incision and the consequent easier bringing up of an often very valuable litter, and the scarcity of costly bandage material, were inducements to us to always employ more and more the flank method in conservative cæsarean section. It was carried out in a great part of the cases. I think the following remarks can be made in its favour. The wound in the median line incision heals in the majority of cases with considerable suppuration. The unfavourable situation of the abdominal incision as a rule hinders a completely sterile closure of the place with bandages, because the bitch with great slyness works the bandage all up together, or stretches the hip loop in order to lick and expose the wound. Further, the greatly swollen mammæ not infrequently cause soiling of the wound by escaping milk, which, as is known, forms a favourable nourishing ground for bacteria.

Finally, I may mention a complication which, according to my experience, does not occur in the flank incision. In very restless animals after laparotomy at the linea alba one has to reckon with the possibility that by motion of the belly wall (continuous howling, strain on the hind parts) sutures may be loosened or torn out. The danger of this post-operative complication occurring is all the more if, after closure of the peritoneum and the straight abdominal muscle, the edges of the rectus sheath are not united by deeply placed button sutures. This sinewy sheath forms the only firm support for the

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wound, because the peritoneum and straight abdominal muscle are much too weak to offer sufficient resistance to the pressure of the abdominal viscera. In contrast to this the flank incision in addition to the closed skin is firmly secured by three layers of well-fixed muscle sutures. Besides, the danger of a rupture of the wound is so much the smaller because the flank undergoes no strong pressure or stretching from the internal organs. As suture material for the wound in the uterus we use iodised catgut as also for suturing the muscle. Lately I suture both internal layers of the muscle with a continuous one-thread suture. The use of very thin silk has a favourable effect on the healing of the abdominal wound. For closure of the skin wound we put on strips of sterile gauze in several layers, strengthened with mastisol (a solution of *resina mastix*), which is protected by a Beets' bandage fixed to the skin.

Abstracts of Current Literature

Alamartine and Galliard.—A Case of Anthrax in Man cured by Anti-anthrax Serum combined with Surgical Treatment. — *Revue Vétérinaire,* September 1924.

A SMALLHOLDER infected himself whilst skinning a sheep which had died suddenly. A short time afterwards a typical pustule developed on his right forearm. The pustule was cauterised with eight punctures, and at the same time a series of analogous cauterisations were put at the upper limit of the œdema. Simultaneously two injections of 50 c.c. of veterinary anti-anthrax serum were made into the sick man. Complete cure resulted in eight days.

Arloing reports an observation of the same kind and accentuates the identity of veterinary and human serum. Forgeot draws the attention of veterinary surgeons to the dangers of skins and their manipulations.

Ueberreiter, O.—Two Cases of Traumatic Ventral Hernia in the Dog, with Spontaneous Recovery.—*Vienna Veterinary Journal,* September 1924.

UEBERREITER relates two cases of ventral hernia in the dog. In the first case the dog had been fighting and been rolled over and over. Two days afterwards the owner noticed a swelling in the region of the left flank. On examination by Ueberreiter the swelling was as large as an egg, soft, elastic, hot and painful. The skin over the swelling was movable and the hernia reducible. The diagnosis was traumatic ventral hernia. Eight days later the œdema had com-

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pletely disappeared and the hernia was the size of a walnut, hard and not reducible. At the wish of the owner an operation was performed, and on incising the skin a little hole was found in which a piece of cartilage of the left twelfth rib was fixed. The cartilage was removed. The place where one formerly traced the hernial ring was blood-extravasated. Two sutures were inserted over the gap in the external oblique abdominal muscle, the skin wound was sutured, and a bandage applied. On operating there were no hernial contents and only the place of the earlier rupture was observable. Histological examination of the substance removed showed it to be an organised hematoma.

The second case was in a dog that eight days previously had got an electric shock from a street cable, and a hernia appeared in the right flank. This was as big as a man's fist, soft and painless. Now and again, according to the owner, the swelling disappeared completely and then reappeared in its original size. The owner was advised to leave well alone for eight days, and at the end of this time when I examined the dog the hernia had completely disappeared and the place of the rupture was only just discernible by a depression in the muscle. These two cases show that hernias in the false rib and flank region involve conservative treatment. In flank hernias the contents return themselves, in hernias of the linea alba a bandage or paraffin injections must be employed. In the first case there was a spontaneous cure by the formation of connective tissue round the fractured piece of rib cartilage. In diagnosis the possibility of hematoma and lymph extravasation has to be remembered, and in fresh traumatic hernias a large or small blood extravasation is almost always found, hence too early incision is not advisable. Ueberreiter comments on the sparsity of clinical records of ventral hernia in the dog.

Blume.—On Laryngeal and Intratracheal Injections in Veterinary Medicine.—*Tierärztliche Rdsch.*, July 30, No. 22, pp. 343–347.

THE author gives a good résumé of intratracheal injections and their uses. He has employed them in diseases of the respiratory organs, strangles, purpura, and even in colic. The injections have been Lugol's solution, oil of turpentine, sulphate of quinine, hydrochlorate of morphia, and strychnine. They have all produced good results, and in a case of broken wind intratracheal injections of strychnine sulphate produced considerable improvement. As in subcutaneous and intravenous injection, drugs introduced into the trachea are quickly and actively absorbed by the mucous membrane and the lungs. The mucous membrane of the respiratory tract seems very tolerant to acrid and oily preparations alone or in vapour form.

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Berge, Dr. E.—Indications for Hysterectomy in the Small Animals. *Arch. f. wiss. Tierhlk.*, 50, p. 245, 1923.

HYSTERECTOMY, that is the amputation of the womb together with its contents, is indicated in: (1) If danger of infection of the genital tract threatens. (2) If pathological changes are present in the uterus (metritis, tumours). (3) If hysterectomy is desired by the owner of the animal.

Teller, Dr. H.—Crop Digestion in the Domestic Fowl.—*Deutsche Tierärztliche Wochenschrift*, August 16, 1924.

THE investigations of the author were directed chiefly to the existence of ferments in the crop. His conclusions are as follows:—

1. The physical condition of the secretion produced by the surface of the mucous membrane of the crop is yellow, tenacious, and stringy.

2. The reaction to litmus paper is generally acid.

3. In the majority of cases lactic acid was found in the crop contents.

4. Free hydrochloric acid was not present.

5. Diastatic ferments were not there.

6. Albumen dividing ferments did not exist.

7. The corn food softened in the crop swells. Wheat increases 11·43 per cent. in weight in a 4 hours' sojourn in the crop, in a 6 hours' stay it increases 32·69 per cent., and in 8 hours 36·71 per cent.

8. Thirty grammes of corn food passed right through the crop in 11 to 12 hours.

9. Water and sodium chloride and grape sugar solution were not absorbed by the mucous membrane of the crop. From this it is assumed that the crop of the domestic fowl serves as a reservoir for food and that the food taken up swells up there and is prepared for digestion. At the same time chemical fermentative processes take place in the crop which serve to lighten the work of the glands lower down (muscular stomach). The ferments are brought from without in the food.

Kaufmann, P.—A Very Simple Method of Examining the Urine for Albumen.—*D. Med. W.*, 1923, p. 190.

To clear fresh urine of acid reaction one-tenth of formalin is added. The test-tube is closed with wood or paper, covered and shaken several times. Within twenty-four hours cloudiness appears showing the presence of albumen.

Brachmann.—The Treatment of Joint and Tendon Windgalls with 16 per cent. Sublimate Spirit.—*Zeitschrift für Veterinärkunde*, 1923, pp. 138–141.

THIS method is very effective in fresh windgalls. It is advisable

to rest the horse for a week. The method is easily employable and quite harmless. It produces irritation, inflammation, and scurf formation, with complete disappearance of the windgalls. The sublimate spirit is rubbed in with a piece of tow or wadding directly over the windgall after clipping the hair off.

Bell, W. M.—An Operation to Stop the Noise made by the Penis in the Sheath when the Horse is going at a Trot or a Gallop.—*Journal of American Veterinary Medical Association.*

WHILE in Sherman, Texas, twenty years ago this summer, I had a patron, a very sensitive young man, who had a nice driving horse. When this horse would trot his penis would make a noise, which annoyed the owner very much. He came to me to see if I could remedy the trouble, thinking it was in the bowels. When I told him where the noise came from it became unbearable, so I would pack the sheath with a piece of cotton cloth every time he went out to drive.

I then made a study of how the noise occurred. The prepuce in these cases closes well over the end of the penis, but not close enough to exclude the air. The penis working backward and forward presses on the imprisoned air and produces this noise. When I had found the cause the remedy was easy—a split in the prepuce on the lower side, allowing the air to escape without sound, being all that is necessary. The restraint I use is twitch and shackles on hind feet.

Wash the sheath and clean as for other surgical operations, stand on the left side and pass the left hand into the sheath ; pass the first two fingers through the opening in the prepuce, engaging the prepuce with two fingers inside and the thumb on the outside, then with a strong pair of blunt end scissors cut the prepuce on the lower side from before, backward, about 2 inches. Give an immunizing dose of tetanus antitoxin, and after-treatment is unnecessary.

I have performed this little operation many times in the past twenty years, but not many in the last five. The results have in every case been entirely satisfactory, no complications have ever followed. It has been a satisfaction and a money-maker for me, and I hope it will be for many others.

Garnier, J.—Quadruple Gestation in the Cow.—*Recueil de Médicine Vétérinaire,* May 15, 1924.

TWINS and triplets are not uncommon in the bovine species, but four calves at a birth are rare. On November 23, 1923, a country cow was delivered, without difficulty, between five and six in the morning, of four well-formed calves—three males and one female, the latter notably smaller than the males. The third, a male, died

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during delivery through being enveloped in the amniotic sac (a caul or cap on its head, to use a popular local expression); the survivors developed quite normally without being deformed or malformed.

The cow was a French one and cross-bred, ten years old, and had previously given birth to twins. She was served twice by the same bull. The chorion mass was voluminous and formed one single pocket.

Fleury.—Exceptional Duration of Gestation in the Cow.—*Ibid.*

On July 18, 1921, a working cow of the Garonne breed, eighteen years old, was served once only. The animal gave birth to an enormous calf on May 30, 1922; that is to say, that the duration of gestation had been exactly ten months and twelve days. This is the longest gestation Fleury has seen in twenty years' practice. Delays of eight to fifteen days have been frequent in old cows, but he has never seen them beyond twenty-eight days.

[Fleming, in his *Obstetrics*, gives the average duration of pregnancy as 283 days, and the longest period between 326–353. In this case of Fleury's it was 316 days.]

Dardillat.—Hindrance to Delivery by the Presence of the Hymen in a Cow.—*Ibid.*

An urgent message came one evening in December 1922 to calve a cow. The cow was a primipara, and had been in labour a short time. Vaginal exploration revealed a smooth hemispherical projection about 5 or 6 inches internally. Rectal exploration showed the head and anterior membranes of the fœtus in good position.

The shortness of this vaginal cavity and absence of dilation of the passage caused me to presume the presence of a hymen. A small incision with the embryotome enabled me to break it down. The neck of the uterus was well dilated, and delivery was easily accomplished without further help.

How can the absence of solution of continuity of the hymen be explained which must have been permeable at a certain period, or be perforated by the bull at service? Perhaps reparation of a small rent took place by suppuration. The owner declared that the cow had a dirty discharge for several days after being served.

Bireaud, H.—Vegetative Endocarditis of Infectious Origin in a Cow. *Revue Vétérinaire*, June 1924.

A Breton cow at the fifteenth month of lactation showed locomotor trouble in the hind quarters. One hind limb seemed markedly affected without it being possible to localise the lameness or detect any lesion to explain it. Rheumatism seemed a possible cause, in spite of the young age of the animal (six or seven), and absence of causes of infec-

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tion following calving, mammitis, or enteritis, etc. At the same time it is well to remember that four years previously this cow had been affected with aphthous fever. I recommended putting the cow in a loose box and adopted a waiting attitude, and a few days after she was walking well and considered out of danger. Fifteen days later she stopped eating, became prostrate, and had a short cough. The heart beats were rapid, tumultuous, strong, unequal, and intermittent. The beats could be heard at a distance. On the morrow there were jugular regurgitations and œdema of the brisket appeared, and prognosis being bad the animal was slaughtered. Post-mortem showed venous stasis in the precordial region. The right ventricle was the seat of numerous vegetations of hen's egg size. The anterior fringe of the tricuspid valve showed lardaceous infiltration, one tendinous cord alone remained. In the anterior angle of the ventricle there was a growth the size of a filbert nut and ecchymosis of the chamber. In the superior abdominal region venous stasis was well marked. This was no doubt the cause of the primary locomotor trouble. Bireaud considers that the vegetative endocarditis was of infectious origin, that its cause was due to the previous attack of foot-and-mouth disease.

R. M. Gordon and W. S. Macfie.—The Hatching in Vitro of the Eggs of Oxyuris Equi.—*Annals of Tropical Medicine and Parasitology.*

It is well known that the embryonated eggs of *Oxyuris equi* occasionally hatch in saline solution, but the phenomenon is an inconstant one, and Schwartz (1923), who has recently studied it, concludes that it is purely accidental. The larvæ which emerge are usually motionless or show only feeble or transient activity, and as pointed out by Schwartz they often are nipped by the too narrow opening in the egg-shell and emerge completely. It would seem that this phenomenon is capable of a purely mechanical explanation, for we have observed it in the case of eggs which had been kept dry at a temperature of 27° C. for over seven months, in which the embryos, although well preserved, showed no signs of life. Some experiments were, therefore, carried out to determine if more satisfactory results could be obtained with media, approximating in some respects more closely to those which, if the eggs were ingested, would be met with in the alimentary canal.

The eggs used were collected from the margin of the anus of a horse and contained active embryos: at the time when the experiments were made they had been kept dry, at a temperature of 27° C., for from one to two weeks. It was found that immersion of such eggs in an acid solution of pepsin for twenty minutes did not cause them to hatch, but that if they were then transferred to either a solution of

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pancreatic juice or to a saline solution of approximately equal alkalinity, a large number of active larvæ emerged. As the result of further experiments, of which that given in the table is an example, it was found that immersion of the eggs first in an acid solution (Hydrochloric acid, 0·1 to 0·2 per cent.) for half an hour or longer, and then in an alkaline solution (Caustic Potash or Sodium Carbonate from 0·1 to 0·5 per cent.) invariably caused large numbers of active larvæ to hatch, whereas the acid solution alone and the alkaline solution alone failed to produce this result. On comparing the action of an acid pepsin solution with that of a corresponding solution of acid alone, little difference was observed, but in one or two experiments the number of eggs which hatched in the former was rather greater.

EXPERIMENT TO TEST THE ACTION OF ACID FOLLOWED BY ALKALI ON EGGS OF *Oxyuris equi*.

Time.	Normal Saline Solution.		Hydrochloric Acid, 0·1 Per Cent.	
5.15 p.m.	Experiment started		Experiment started	
5.45 p.m.	No free larvæ.	Some of the eggs transferred to 0·5 per cent. sodium carbonate solution	No free larvæ.	Some of the eggs transferred to 0·5 per cent sodium carbonate solution
6.10 p.m.	No free larvæ.	No free larvæ	No free larvæ.	No free larvæ
6.50 p.m.	No free larvæ.	No free larvæ	No free larvæ.	A few larvæ have hatched, most of them actively motile
8.10 p.m.	One free larvæ, appears dead.	One free larvæ, appears dead	No free larvæ.	Very many larvæ have hatched

Kettner.—The Use of Salt Solutions in Veterinary Therapy.—*Wiener Tierärzt. Monatschrift*, July 1924.

CONCENTRATED solutions are used subcutaneously (so as to cause inflammation), and with benefit in shoulder and hip lameness, navel and ventral hernia and chest abscesses; physiological salt solution are indicated in internal hæmorrhages, acute anæmia, diarrhœa, septic diseases, hæmoglobinuria of cattle, intoxications, chloroform and gas poisonings. Generally large quantities were injected intravenously, only the intestine and uterus can be influenced directly.

Weber.—Sixty-nine Cases of Malignant Catarrhal Fever in Cattle.—*B.T.W.*, Vol. 6.

IN the spring and autumn the author has noticed many cases of

malignant catarrhal fever in cattle, and often a very virulent type. Breed, sex, pregnancy, and condition had no influence in the matter.

The disease occurs chiefly in high-lying villages and in one lot of beasts, 10 to 70 per cent. falli. ill. Of 69 cases the head form occurred 40 times, the brain form 16 times, and the intestinal form 13 times. The eye trouble only occurred in one or two cases in the brain and intestinal cases. Chemical disinfectants with a view to wholesale sterilisation were chiefly used. The mortality reached 50 per cent. The flesh of slaughtered animals is injurious. Prophylaxis consisted of reinforcing the manure pits with cement after cleansing and disinfection.

Benesch, F.—A Rare Case of Second Laparotomy in the Bitch.—*Wiener Tierärzt Monatschrift,* July 1924.

BENESCH performed laparotomy and removed two fœtuses from a bitch. Three days afterwards, placental necrosis of the uterus occurred. He opened up the abdominal wound under a local anæsthetic of novocain and adrenalin and amputated the uterus. The bitch got into a very weak state, and had daily doses of 60 to 80 grammes of ol. sesami subcutaneously. She also received coffee, digitalis, sodium cacodylate, and physiological salt solution. Some hæmorrhage from the vagina occurred on the thirteenth day, and a small abscess formed at the angle of the abdominal wound; but she eventually made a good recovery, and was discharged cured on May 13th, twenty-nine days after she came in.

L'Hostis.—Rupture of the Left Mammary Vein in a Cow.—*Recueil de Médécine Vétérinaire,* June 15, 1924.

CALLED to see a cow wounded in leaping a fence. The owner suspected hernia as a result. Arrived at the case, my first impression was that I had a big hernia of the rumen to deal with.

The swelling was on the left side of the abdomen. Its diameter at the base was about a foot. Its base had a well-defined contour and was prolonged backwards to the udder. It was tense and hot and very sensitive.

Auscultation showed no abdominal murmurs. Capillary puncture made at different points some distance from each other gave issue to drops of liquid the colour of dark blood. I decided there was no hernia but a rupture of the left mammary vein, and the swelling was due to no other cause than a huge mass of extravasated blood. I removed the hair from the part and blistered the whole of the engorged area. Three weeks later the swelling was reduced by two-thirds. Towards the end of the fifth week all trace of it had disappeared.

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L'Hostis.—Tumour of the Vagina in a Cow.—*Ibid*, June 15, 1924.

An owner asked me to see a cow whose "womb came out periodically."

It was a four-year-old cow, which a year previously had shown at the vulva "a small red ball the size of an egg." After calving the tumour disappeared, and it was only after a fresh calving, which had taken place three weeks before, and was a very difficult one, that the owner noticed its reappearance. I had not seen the mass outside the vulva, and on my arrival all seemed normal. I made a vaginal exploration, and felt a tumour as large as my two fists attached to the left wall of the vagina close to the floor, with a pedicle an inch in diameter. With the consent of the owner I decided to remove it with a chassaignac écraseur. I gave the patient a good dose of tincture of opium and an injection of cocaine into the pedicle of the tumour. I waited ten minutes, and then removed it. The cow did not budge nor lose a drop of blood. The tumour removed was filled with fatty tissue. It had the characters of a lipo-myoma. Such tumours are rare in the cow, and the cases mentioned in veterinary literature are rare, hence my reason for recording this one.

Reviews

The History of Veterinary Literature. Vol. II, The Eighteenth Century. By Major-General Sir Frederick Smith, K.C.M.G., C.B. Royal 8vo. Pp. viii + 242. London: Baillière, Tindall & Cox. Price 15s.

It has been a pleasure to us to have been the means of making public this work of Major-General Sir Frederick Smith, and we are confident that our readers who have preserved the parts which were issued with the Journal month by month and had them bound will have reason to be well satisfied with their possession. For the benefit of those who have not obtained them in this way, bound copies of the book have been issued by the publishers.

The first volume of this work has long been out of print, and the volume now completed will no doubt soon be equally in demand. It must have been a monumental labour, yet the story of the development of our science during the critical period of its transition out of the hands of empirics into those of the trained veterinary surgeon is eminently readable and interesting. As the author points out in the preface, the time is not far off when it will be expected of all members of the profession to have some knowledge of the men who as pioneers laid the foundations of the science.

Sir Frederick has gathered together for us, from every available source, all that is important about every writer on the subject of the diseases of animals in the period in question, no fewer than 180 authors being brought under review. He does not spare his criticism, yet on the

whole the advances he records during the period are substantial, and the profession has no reason to be ashamed of the progress made. We understand that the author is already engaged on the preparation of a third volume dealing with the first half of the nineteenth century, and we think we shall be expressing the real feelings of the whole profession by saying that we feel eternally indebted to him for his disinterested labours for our benefit, and trust he may be spared to complete the task he has set himself. The veterinary profession will then be possessed of an exhaustive history of its past expression in literature, written by a man who himself is one of its foremost authors, whose works are text-books in all parts of the Empire, and who, though an ardent admirer of the profession, has a clear vision of its past shortcomings and sound views based on a wide experience as to its future development.

Tubercle Bacillus Infection and Tuberculosis in Man and Animals. By ALBERT CALMETTE, Associate Director, Pasteur Institute, Paris. Authorised translation by W. B. SOPER, M.D., and G. S. SMITH, Ph.D. Second Edition. Pp. xiv.+689. Price 40s. London: Baillière, Tindall & Cox, 8 Henrietta Street, London.

THIS work is undoubtedly one of the most important contributions to the literature of tuberculosis, especially from the experimental and veterinary aspects. Its four parts and forty-four chapters contain a wealth of information and data invaluable to every student of tuberculosis in man or beast, as well as to every practitioner whose field of work embraces this disease.

The Introduction is a brief review of the progress made in the study of phthisis from the olden times up to the discovery of the tubercle bacillus by Robert Koch, and a description of the controversy between the holders of different doctrines of the ætiology of this disease, with the final triumph of the doctrine of infection by a specific organism.

A portion of the first part of the book is devoted to the explanation of the processes of infection, and the opening chapters deal with the description of the organism, and the different methods for its isolation, culture and recognition. In the remainder of the first part the author describes the different processes of infection, and the lesions produced by the bacillus with experimental data which lead him to conclude that: "In all susceptible animals—man included—tuberculosis in an immense majority of cases results from an infection which originates in the absorption of tubercle bacilli from the digestive tract." The author explains the small part played by heredity, and urges the vast importance of infection after birth.

The second part deals with experimental tuberculosis and infection in animals, which is especially valuable to veterinarians, and all those interested in the suppression of cattle tuberculosis. The differential characteristics of the human and bovine bacilli, and the relation of the tuberculosis of cattle to the infection of humans through milk and meat of diseased animals, is minutely considered. In the last section the author deals with the all important question of immunity. This section, especially rich in experimental data, is practically a review of all the important researches made towards the goal that all are trying to reach,

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viz. the prevention of tuberculosis. He has been successful in producing demonstrable immunity in many animals by using an alternated culture of living bacilli.

The author concludes by saying that vaccination of animals is possible, and urges further investigations.

Splendid illustrations in natural colours have been freely used and there is a complete index of references.

Surgical Diseases of the Dog and Cat with Chapters on Anæsthetics and Obstetrics. By F. T. G. HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E. Third Edition, demy 8vo., pp. xii + 435; figs. in text 263. Price 15s.net. London: Baillière, Tindall & Cox, 8 Henrietta Street, London.

The third edition of this standard text-book will be welcomed by a host of veterinary surgeons. In no branch of veterinary surgery has the science and art advanced to a greater degree than in that of canine work, and Professor Hobday is largely responsible for the increased knowledge on the subject possessed by the British veterinarian. The present work has been revised and enlarged, and is now right up to date in all surgical and anæsthetic matters involving the dog and cat. The Great War prevented translations of the second edition of the book into French and German being printed and circulated, as, unfortunately, the translations were lost. No doubt fresh ones will be undertaken, as a book like this appeals strongly to veterinarians of all countries in view of the changed conditions of practice.

The various steps in aseptic and antiseptic procedure are clearly explained, and the advice concerning the choice of local and general anæsthetics is given by one of exceptional experience and is certainly reliable. The help that morphia affords to the single-handed practitioner alone, or as an aid to general anæsthesia, is pointed out and used alone.

The advent of laparotomy enabled the diagnosis of the internal diseases of the dog to be placed on a sound surgical footing, and Professor Hobday early took advantage of the procedure. The book is very strong on this subject. In most cases an exact knowledge of internal morbid conditions can only be gained by opening up and looking into the cavities of the body, and all that is written on this matter is the result of pioneer work and close observation during a period of over thirty years. It is very valuable, and this section may be looked on as a classic of its kind. The dogs that live now through laparotomy and improved abdominal surgery, which previously would have died, must be legion. The chapter on " Difficult Parturition " contains much sound advice, especially in the words " on no account should there be undue haste to use instruments." Many patients, especially of the small and well-bred variety, seem very intolerant of instrumental help and very susceptible to shock or bad after-effects. Pituitrin is nowadays largely used in these uterine inertia and dystocia subjects, and many times it obviates the use of forceps. Some statistics would be interesting on the numbers of patients that have been successfully delivered by performing laparotomy, passing the fœtus towards the pelvic outlet, and delivering by forceps. The value of this procedure in the case of costly pedigree bitches is obvious, and its advantages over hysterectomy and hysterotomy are evident.

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The text-book is exceedingly well illustrated, and the busy canine practitioner can vouch for the exactness of many of the things he sees illustrated, which is one of the best recommendations of any author and his work. The technique of surgery is always advancing. The great principles of the science and art are now well grounded, and it remains for this book to point the way to success for the surgical enthusiast, a thing which it does clearly, concisely, and adequately.

Survey of Work of the Granja Modelo en Puno, May 1921–July 23rd. By Colonel R. J. Stordy, C.B.E., D.S.O.

It gives the progressive veterinarian much satisfaction to observe the success that usually attends the investigation of problems affecting live stock when complete control and power to act in the various matters are given to trained veterinary scientists.

There is nothing in Colonel Stordy's survey to suggest that the work was hampered in any way by lay interference ; on the contrary, it would appear that his genial and forceful personality, in conjunction with his established reputation as a veterinary administrator, succeeded in obtaining for him full support in everything that was undertaken.

The survey falls roughly into two parts. The first part relates to the importation of a large number of pedigree stock (comprising sheep, cattle, horses, pigs, sheep-dogs, and poultry), and to subsequent stud-farming operations on a large scale.

The whole of the animals, nearly 200, excepting five rams that came aboard at La Rochelle, were embarked in the London Docks on one ship, and made the voyage to Peru in charge of Captain W. W. Henderson, M.R.C.V.S., who was assisted by certain Scottish shepherds. This personnel had been engaged in Scotland for service at the Granja Modelo. In fact there is a strongly Scottish flavour about the entire undertaking, but as the chief objects of investigation were sheep and wool this circumstance may not have been disadvantageous.

The farming and breeding operations that followed, and the many difficulties and disappointments that occurred, are faithfully recorded in a form that will be useful and interesting to those of our profession who have to do similar work in the more remote parts of the world. The rest of the book is chiefly concerned with describing accurately and in detail many matters affecting the production and the maintenance of live stock in Peru, together with much technical information on the subject of wool and hair.

The style of this little book is pleasing. There is a human touch in its composition that is reminiscent of its author, and it does undoubtedly constitute a considerable addition to the scientific knowledge of animal management and stock farming in South America. The work is well illustrated, but there is no index. The publisher's name is not given : presumably the Survey was departmentally printed.

Annual Report of the Veterinary Department of the City of Edinburgh for the year 1923.

This Report by A. Gofton, F.R.C.V.S., with a summary of the work at the Bacteriological Laboratory by W. Jowett, F.R.C.V.S., D.V.S.M., furnishes a record of sound achievement in the domain of the public

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health of the City of Edinburgh. The abattoirs and fat stock markets have been closely supervised, and this has led to the detection and quick slaughter of sick and injured animals and the prevention of the introduction and spread of foot-and-mouth disease. Under the new Meat Inspection Regulations of the Scottish Board of Health all meat coming into and sold in the city is uniformly and scientifically inspected. Comprehensive and model measures as to the carrying out of inspection have been promulgated as the result of an enquiry into the matter carried out by Dr. Leighton, M.O.H. Sixty-three tons of meat were condemned as unfit for human food. Tuberculosis was accountable for much the greater proportion of this amount. During the years 1920 to 1923 inclusive 0·6 per cent. of dairy cows were found to have tuberculosis of the udder. The average condemnations for the last three years in this disease alone represent an annual cash value of £5,000, or roughly £96 per week. Giving the following figures :—

	Tuberculosis.	*All Other Causes.*
Carcases by weight ..	82·35 per cent. ..	17·65 per cent.
Edible offal	44·12 "	55·88 "
Heads	88·13 "	11·87 "

Mr. Gofton states: " It is very doubtful if the economic importance of tuberculosis is realised by the live stock industry, and I desire to emphasies the significance of the above figures in the hope of stimulating effort to reduce and limit the incidence of disease."

It is shortly hoped to introduce a dry process plant to deal with condemned meat and so effect a bigger return of by-products of a higher market value. The Port Food Inspection at Leith has been systematically carried out. Sound progress has been made in the inspection of cowsheds and dairy cows, and the purity of the milk supply of Edinburgh has been very efficiently safeguarded. The grading of milk and the examination of milk by estimation of the bacterial content have been the chief forces by which a clean supply has been secured.

Mr. Jowett's work in the laboratory has been to enumerate bacteria and examine samples for specific micro-organisms, and right well has he carried out his duties. Foodstuffs and other materials have also been examined bacteriologically, such as ice-cream, pressed beef and meat pastes, and various other suspected materials. In a short note on *mastitis* the bacteriologist calls attention to its prevalence in dairy cows and the undesirableness of milk supplies containing the streptococcus.

The value of veterinary effort in the Health Service is clearly indicated in this Report. The profession knows what good it can do if given a chance. The example of Edinburgh ought to be more freely followed in all large towns and cities as well as some universal and uniform supervision of this nature throughout the whole country.

Personal

CONGRATULATIONS to Sir John M'Fadyean on receiving the Honorary Degree of Doctor of Veterinary Science from the Buda Pesth Veterinary Academy.

This is the first time this honour has been conferred upon a member of the British Veterinary Profession.

CONGRATULATIONS to Mr. Leslie Sheather, B.Sc., M.R.C.V.S., on the presentation of the Steel Medal. This is one of the highest honours the profession can bestow, and is always given by the vote of the Council for original scientific work.

THE R.A.V.C. " Old Comrades " Fourth Annual Dinner is to be held at Anderton's Hotel, Fleet Street, E.C., November 28th, at 7 p.m. Morning dress. Tickets (5s. 6d. each) can be obtained from Mr. Corr, R.A.V.C., Records Office, Woolwich Common, S.E.

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